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APPLICANT : NISSHIN STEEL CO LTD;

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TITLE : HIGH STRENGTH STAINLESS STEEL EXCELLENT IN TOUGHNESS AND ITS PRODUCTION

ABSTRACT : PURPOSE: To simultaneously impart high strength and high toughness to stainless steel by specifying the content of C, Si, Mn, Ni, Cr, Mo and N and the relationship of C+N in the stainless steel.

CONSTITUTION: The chemical components of the subject stainless steel are constituted of, by mass, $\leq 0.10\%$, 1.0 to 3.0% Si, $\leq 2.0\%$ Mn, 4.0 to 9.0% Ni, 12.0 to 18.0% Cr, 1.0 to 5.0% Mo and $\leq 0.15\%$ N and in which the C and N are contained so as to satisfy the relation of $C+N \geq 0.10\%$, and the balance Fe with inevitably intruded impurities. The stainless steel having the same compsn. and having an austenitic phase metastable as subjected to solid solution treatment is subjected to cold working at 30 to 80% cold working ratio sufficient for forming strain induced martensite. Next, it is subjected to short time maraging treatment at 300 to 650 C for 0.5 to 5min. In this way, the high strength stainless steel having about $\geq 1800\text{N/mm}^2$ tensile strength and excellent in toughness can be obtd.

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